

FORM PTO-1390 (Modified)
(REV 11-98)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

T2146-907272

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

09/856700

INTERNATIONAL APPLICATION NO.
PCT/FR00/02642

INTERNATIONAL FILING DATE
September 25, 2000

PRIORITY DATE CLAIMED
September 27, 1999

TITLE OF INVENTION

**METHOD AND ARCHITECTURE FOR REMOTE MONITORING OF A USER STATION VIA AN
INTERNET-TYPE NETWORK AND APPLICATION THEREOF TO A SMART CARD DEMONSTRATOR**

APPLICANT(S) FOR DO/EO/US

Renaud MARIANA

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
- ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
- ☒ A copy of the International Search Report (PCT/ISA/210).
- ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
- ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
- ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
- ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
- ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 20 below concern document(s) or information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☒ A change of power of attorney and/or address letter.
19. ☐ Certificate of Mailing by Express Mail
20. ☒ Other items or information:

Verification of Translator

Formal Drawings (2)

Proposed Drawing Corrections, with 2 red-lined formal drawings

PCT forms: Demande, PCT/IB/301, 308; PCT/RO/101

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 1.53) <div style="font-size: 24pt; font-weight: bold;">09/856700</div>		INTERNATIONAL APPLICATION NO. PCT/FR00/02642		ATTORNEY'S DOCKET NUMBER T2146-907272	
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21. The following fees are submitted: BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :				CALCULATIONS PTO USE ONLY	
<input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1,000.00 <input checked="" type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$860.00 <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$710.00 <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$690.00 <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00				<div style="border: 1px solid black; padding: 5px; width: 100%;"> ENTER APPROPRIATE BASIC FEE AMOUNT = <div style="display: flex; justify-content: space-between;"> \$860.00 </div> </div>	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).				<div style="border: 1px solid black; padding: 5px; width: 100%;"> \$0.00 </div>	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	15 - 20 =	0	x \$18.00	\$0.00	
Independent claims	2 - 3 =	0	x \$80.00	\$0.00	
Multiple Dependent Claims (check if applicable). <input type="checkbox"/>				\$0.00	
TOTAL OF ABOVE CALCULATIONS =				\$860.00	
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) (check if applicable). <input type="checkbox"/>				<div style="border: 1px solid black; padding: 5px; width: 100%;"> \$0.00 </div>	
SUBTOTAL =				\$860.00	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).				<div style="border: 1px solid black; padding: 5px; width: 100%;"> \$0.00 </div>	
TOTAL NATIONAL FEE =				\$860.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). <input checked="" type="checkbox"/>				<div style="border: 1px solid black; padding: 5px; width: 100%;"> \$40.00 </div>	
TOTAL FEES ENCLOSED =				\$900.00	
				Amount to be:	\$
				refunded	
				charged	\$

☒ A check in the amount of **\$900.00** to cover the above fees is enclosed.

 Please charge my Deposit Account No. _____ in the amount of _____ to cover the above fees.
 A duplicate copy of this sheet is enclosed.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **50-1165** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Edward J. Kondracki
 MILES & STOCKBRIDGE P.C.
 Suite 500 - 1751 Pinnacle Drive
 McLean, VA 22102-3833

SIGNATURE

Edward J. Kondracki
 NAME

20,604
 REGISTRATION NUMBER

May 25, 2001
 DATE

IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (D.O./E.O./US)

Applicant: Renaud MARIANA

International
Application No.: PCT/FR00/02642

International
Filing Date: 25 September 2000

U.S. Serial No.: To be Assigned

U.S. Filing Date: May 25, 2001

For: **METHOD AND ARCHITECTURE FOR REMOTE
CONTROL OF A USER STATION VIA AN INTERNET-
TYPE NETWORK AND APPLICATION THEREOF TO A
SMART CARD DEMONSTRATOR**

McLean, Virginia

PRELIMINARY AMENDMENT

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

Please amend the subject application, filed concurrently herewith, as
indicated below:

IN THE TITLE:

Delete "MONITORING" and substitute --CONTROL--;

IN THE SPECIFICATION:

After the title and before the first paragraph on page 1 at line 5, insert
the following heading at the left-hand margin:

--FIELD OF THE INVENTION--;

Page 1, line 18, before the paragraph beginning "Smart cards...",
insert the following heading at the left-hand margin:

--DESCRIPTION OF RELATED ART--;

Page 3, at line 5, and before the paragraph beginning "The invention seeks..." insert the following paragraph at the left-hand margin:

--SUMMARY OF THE INVENTION--;

Page 5, at line 17 and before the paragraph beginning "The invention will now...", insert the following heading at the left hand margin:

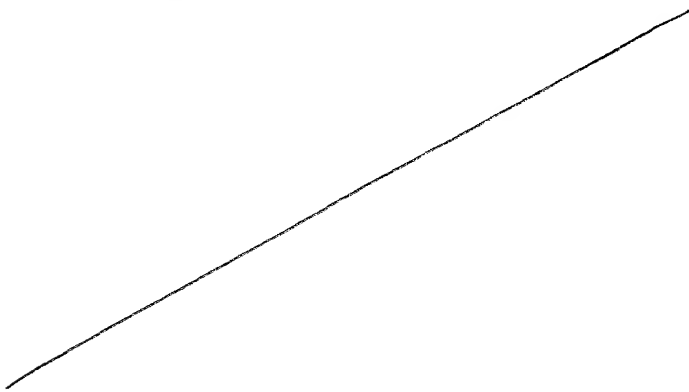
--BRIEF DESCRIPTION OF THE DRAWINGS--;

Page 5, at line 25 and before the paragraph beginning "Hereinafter, without...", insert the following heading at the left hand margin:

--DESCRIPTION OF THE PREFERRED EMBODIMENTS--;

Page 15, after line 12, insert the following new paragraph:

--While this invention has been described in conjunction with specific embodiments thereof, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, the preferred embodiments of the invention as set forth herein, are intended to be illustrative, not limiting. Various changes may be made without departing from the true spirit and full scope of the invention as set forth herein and defined in the claims.—



IN THE CLAIMS:

Please cancel the claims in their entirety and substitute the following
'claims for the claims in the application. The claims that follow are a complete
set of "clean" claims. The original claims marked up to show the changes
with underlining and bracketing are included as an attachment to this

Preliminary Amendment:

T05250"00295860

17. A method for remote control of a user station using a smart card via an internet-type network, said user station being equipped with a smart card reader and comprising a first communication protocol stack, said smart card reader comprising a second communication protocol stack and said smart card comprising a third communication protocol stack, allowing communications between said user station and a remote server connected to said network and communications between said user station and said smart card via said smart card reader, said user station also comprising means for generating requests transmitted to said remote server, characterized in that it comprises:

- storing (42) in said remote server (4) data and/or instructions in a first preliminary phase for allowing the generation of specific commands upon reception of specific requests originating from said request generating means (10) and their transmission to said user station (1);

- loading into said user station (1) a second preliminary phase in a piece of specialized software (8) forming an interface between said first and second protocol stacks and designed to translate said specific commands received by said user station (1) into commands that conform to a first given communication protocol;

- and at least the following steps:

- a/ transmitting to said remote server at least one specific request;

- b/ generating by said remote server (4), upon reception of said

- specific request, at least one of said specific commands and

24 transmitting said at least one of said specific commands to said
 25 user station (1) using a second given communication protocol;
 26 c/ receiving said specific command in said user station (1),
 27 intercepting said piece of specialized software (8) and translating
 28 said piece of specialized software into said first given
 29 communication protocol;
 30 d/ using said first given communication protocol to transmit said
 31 translated command to said smart card (2), via said smart reader
 32 (3); and
 33 e/ activating at least one given function of at least one application
 34 (26) stored in said smart card (2), by said translated command in
 35 order to perform said control of the user station.

1 18. A method according to claim 17, characterized in that said data
 2 and/or instructions stored in said remote server (4) and allowing the
 3 generation of specific commands comprise smart card context data, said
 4 context data being a representation, in the memory of said remote server (4),
 5 of said smart card (2) present in said user station (1).

1 19. A method according to claim 18 characterized in that, said
 2 smart card (2) is controlled by an operating system associated with a version
 3 number, and said context data comprises at least said version number of the
 4 operating system.

1 20. A method according to claim 17, characterized in that said
2 specific commands are the result of the execution of a CGI type script in said
3 remote server (4).

1 21. A method according to claim 17, characterized in that said piece
2 of specialized software (8) is loaded into said user station (1) during said first
3 preliminary phase, from a data recording medium.

1 22. A method according to claim 17, characterized in that said piece
2 of specialized software (8) is downloaded into said user station (1) during said
3 first preliminary phase, from a remote server, via said internet network (RI).

1 23. A method according to claim 17, characterized in that said first
2 given communication protocol is of the TCP/IP type.

1 24. A method according to claim 17, characterized in that said
2 second given communication protocol conforms to ISO standards 7816-1
3 through 7816-4.

1 25. A method according to claim 17, further comprising, subsequent
2 to activating said at least one given function, the steps of:

3 f/ transmitting data and/or instructions between said smart card (2)
4 and said terminal (1), via said smart card reader (3), said
5 transmission being performed using said first given communication
6 protocol;

7 g/ translating said data and/or instructions by said piece of
 8 specialized software (8) and its transmission to said remote server
 9 (4), using said second given communication protocol;
 10 h/ processing said data and/or instructions by said remote server
 11 (4);
 12 i/ generating by said remote server (4) [of] data characteristic of a
 13 configuration of said smart card (2) and/or of an application stored
 14 in said smart card (2), and for the transmission of said
 15 characteristic data to said terminal (1) using a third given
 16 communication protocol; and
 17 j/ display of said characteristic data on a display screen (5)
 18 connected to said terminal (1).

1 26. A method according to claim 25, characterized in that, said
 2 request generating means is constituted by a web type browser (10), and
 3 further comprising storing in said remote server (4) in a third preliminary
 4 phase data constituting static display pages, and subsequent steps
 5 comprising transmitting upon reception of specific requests generated by said
 6 browser (10), all or some of said static display page data to said terminal in
 7 order to display pages of information associated with said smart card (2) on
 8 said display screen (5).

1 27. A method according to claim 26, characterized in that it further
 2 comprises generating, by means of said browser (10), in a fourth preliminary
 3 phase a particular request transmitted to a remote server connected to said

4 internet network (*R/I*), in order to download a particular piece of software
 5 called an applet into the browser (10), so as to automate all or some of said
 6 'steps'a/ through j/.

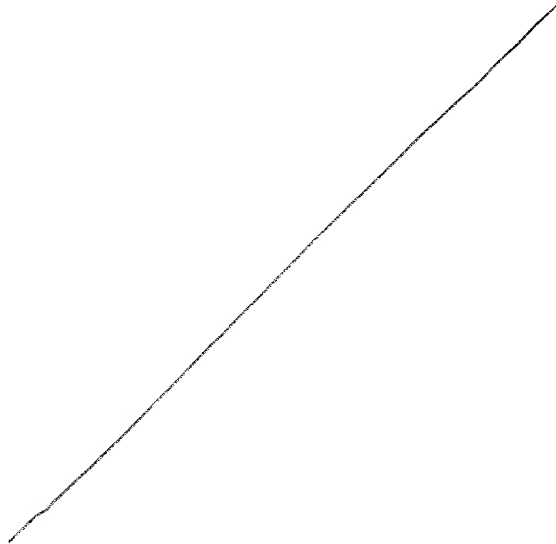
1 28. A method according to claim 27, characterized in that said applet is
 2 written in JAVA language.

1 29. A method according to claim 25, characterized in that said third
 2 given communication protocol is of the HTTP type.

1 30. A system architecture for remote control of a user station (1)
 2 using a smart card via an internet-type network (*R/I*), said user station (1)
 3 being equipped with a smart card reader (3) and comprising a first
 4 communication protocol stack, said smart card reader (3) comprising a
 5 second communication protocol stack and said smart card (2) comprising a
 6 third communication protocol stack, allowing communications between said
 7 user station (1) and a remote server (4) connected to said network and
 8 communications between said user station (1) and said smart card (2) via
 9 said smart card reader (3), said user station (1) also comprising means for
 10 generating requests (10) transmitted to said remote server (4), characterized
 11 in that said remote server (4) comprises a storage device (41, 42) for storing
 12 data and/or instructions allowing the generation of specific commands upon
 13 reception of specific requests originating from said request generating means
 14 (10) and their transmission to said user station (1), and in that said user
 15 station (1) comprises a specialized module (8) forming an interface between

16 said first and second protocol stacks and adapted to translate said specific
17 commands received by said user station (1) in conformity with a first given
18 communication protocol, into commands that conform to a second given
19 communication protocol, in order to transmit them, using said second given
20 communication protocol, via said smart card reader (3) to said smart card (2),
21 so as to activate at least one given function of at least one application stored
22 in said smart card (2).

1 31. A system architecture according to claim 30, characterized in that
2 said remote server (4) further comprises an HTTP server (40), first storage
3 device (42) for storing said data and/or instructions allowing the generation of
4 specific commands, and second storage device (41) for storing data
5 constituting display pages in HTML language.



32. A smart card demonstrator (2), using the system architecture according to claim 30, said user station (1) comprising a display screen (5) for displaying data transmitted by said remote server (4) to said supplementary module (8) and characteristic data of a context of said smart card (2), using a

5 third given communication protocol, said characteristic data being generated by said remote server (4) upon reception of data sent by said smart card (2), using said second given communication protocol, translated by said supplementary module (8) and transmitted to said remote server (4) using said first given communication protocol.--

0955700 00295860

IN THE ABSTRACT:

Please delete the Abstract at page 21 in its entirety and substitute the following new Abstract. (An Abstract showing the changes using brackets and underlining is included as an attachment at the end of this Preliminary
5 Amendment.)

0955700-05590105250-00295860

--ABSTRACT

The invention concerns a method and an architecture using a smart card (2) for remote control, via an internet-type network (*R/I*), of a user station (1) comprising a smart card reader (3). The data required to control the station (1) are stored (41) in a remote server (4). The station (1) comprises a web-type browser (10) that transmits requests to the server (4). In response, the latter generates specific commands designed for the smart card (2). The station (1) comprises a specialized software module (8) forming an interface between the smart card reader (3) and the internet network (*R/I*). This module (8) translates the specific commands into commands in conformity with the ISO 7816-4 standard, and transmits them to the smart card (2) in order to activate an application of the latter. The server (4) can also store (42) HTML pages. The smart card (2) transmits, via the specialized software module (8), a response to the remote server (4), which processes it and retransmits the data to the browser (10) for display on a screen (5). The invention is particularly applicable to a smart card (2) demonstrator.--

REMARKS

This Preliminary Amendment is filed to insert headings to conform the application to U.S. practice, and to correct informalities in the specification, claims and abstract resulting from a literal translation of the French text.

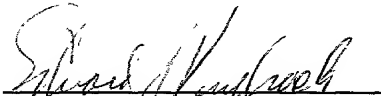
Early action on the merits is earnestly solicited.

Respectfully submitted,

MILES & STOCKBRIDGE P.C.

Date: May 25, 2001

By:


Edward J. Kondracki
Registration No. 20,604

1751 Pinnacle Drive – Suite 500
McLean, VA 22102-3833
Tel.: 703/903-9000
Fax: 703/610-8686

The following are the original claims marked up to show the changes with underlining and bracketing:

1 --17. (Old claim 1) [Method] A method for remote control of a user
2 station using a smart card via an internet-type network, said user station
3 being equipped with a smart card reader and comprising a first
4 communication protocol stack, said smart card reader comprising a second
5 communication protocol stack and said smart card comprising a third
6 communication protocol stack, allowing communications between said user
7 station and a remote server connected to said network and communications
8 between said user station and said smart card via said smart card reader,
9 said user station also comprising means for generating requests transmitted
10 to said remote server, characterized in that it comprises:

11 - [a first preliminary phase for] storing (42) in said remote server (4)
12 data and/or instructions in a first preliminary phase for allowing the generation
13 of specific commands upon reception of specific requests originating from
14 said request generating means (10) and their transmission to said user
15 station (1);

16 - [a second preliminary phase for] loading into said user station (1) a
17 second preliminary phase in a piece of specialized software (8) forming an
18 interface between said first and second protocol stacks and designed to
19 translate said specific commands received by said user station (1) into
20 commands that conform to a first given communication protocol;

21 - and at least the following steps:

22 a/ [the transmission] transmitting to said remote server [of] at least

one specific request;
 b/ [the generation] generating by said remote server (4), upon
 reception of [such a] said specific request, [of] at least one of said
 specific commands and [their transmission to] transmitting said at
least one of said specific commands to said user station (1) using a
 second given communication protocol;
 c/ [the reception of] receiving said specific command in said user
 station (1), [its interception by] intercepting said piece of specialized
 software (8) and [its translation] translating said piece of specialized
software into said first given communication protocol;
 d/ [the transmission of said translated command to said smart card
 (2)] using said first given communication protocol to transmit said
translated command to said smart card (2), via said smart reader
 (3); and
 e/ [the activation by said translated command of] activating at least
 one given function of at least one application (26) stored in said
 smart card (2), by said translated command in order to perform said
 control of the user station.

18. (Old claim 2) [Method] A method according to claim [1] 17,
 characterized in that said data and/or instructions stored in said remote server
 (4) and allowing the generation of specific commands comprise [so-called]
 smart card context data, said context data being a representation, in the
 memory of said remote server (4), of said smart card (2) present in said user
 station (1).

1 19. (Old claim 3) [Method] A method according to claim [2] 18,
 2 characterized in that, said smart card (2)[being] is controlled by an operating
 3 system, associated with a version number, and said context data comprises at
 4 least said version number of the operating system.

1 20. (Old claim 8) [Method] A method according to claim [1] 17,
 2 characterized in that said specific commands are the result of the execution
 3 of a CGI type script in said remote server (4).

1 21. (Old claim 9) [Method] A method according to claim [1] 17,
 2 characterized in that said piece of specialized software (8) is loaded into said
 3 user station (1) during said first preliminary phase, from a data recording
 4 medium.

1 22. (Old claim 10) [Method] A method according to claim [1] 17,
 2 characterized in that said piece of specialized software (8) is downloaded into
 3 said user station (1) during said first preliminary phase, from a remote server,
 4 via said internet network (*R/I*).

1 23. (Old claim 11) [Method] A method according to claim [1] 17,
 2 characterized in that said first given communication protocol is of the TCP/IP
 3 type.

24. (Old claim 12) [Method] A method according to claim [1] 17,
 characterized in that said second given communication protocol conforms to
 ISO standards 7816-1 through 7816-4.

25. (Old claim 4) [Method] A method according to claim [1] 17,
 [characterized in that it also comprises] further comprising, subsequent to
 [said activation step,] activating said at least one given function, the steps of:

f/ [a step for] transmitting data and/or instructions between said
 smart card (2) and said terminal (1), via said smart card reader (3),
 said transmission being performed using said first given
 communication protocol;

g/ [a step for the translation of] translating said data and/or
 instructions by said piece of specialized software (8) and its
 transmission to said remote server (4), using said second given
 communication protocol;

h/ [a step for the] processing [of this] said data and/or [these]
 instructions by said remote server (4);

i/ [a step for the generation] generating by [this] said remote server
 (4) [of] data characteristic of a configuration of said smart card (2)
 and/or of an application stored in said smart card (2), and for the
 transmission of said characteristic data to said terminal (1) using a
 third given communication protocol; and

j/ [a step for the] display[, on a display screen (5) connected to said
 terminal (1),] of said characteristic data on a display screen (5)
connected to said terminal (1).

1 26. (Old claim 5) [Method] A method according to claim [4] 25,
2 characterized in that, said request generating means [being] is constituted by
3 a web type browser (10), [it comprises a third preliminary phase consisting of]
4 and further comprising storing in said remote server (4) in a third preliminary
5 phase data constituting [so-called] static display pages, and subsequent steps
6 comprising [the transmission, using said third given communication protocol,]
7 transmitting upon reception of specific requests generated by said browser
8 (10), [of] all or some of [this] said static display page data to said terminal
9 using said third given communication protocol in order to display pages of
10 information associated with said smart card (2) on said display screen (5).

1 27. (Old claim 6) [Method] A method according to claim [5] 26,
2 characterized in that it further comprises [a fourth preliminary phase
3 consisting of] generating, by means of said browser (10), in a fourth
4 preliminary phase a particular request transmitted to a remote server
5 connected to said internet network (*R/I*), in order to download a particular
6 piece of software called an applet into the browser (10), so as to automate all
7 or some of said steps a/ through j/.

1 28. (Old claim 7) [Method] A method according to claim [6] 27,
2 characterized in that said applet is written in JAVA [(registered trademark)]
3 language.

29. (Old claim 13) [Method] A method according to claim [4] 25,
 characterized in that said third given communication protocol is of the HTTP
 type.

30. (Old claim 14) [System] A system architecture for remote control
 of a user station (1) using a smart card via an internet-type network (*R/I*), said
 user station (1) being equipped with a smart card reader (3) and comprising a
 first communication protocol stack, said smart card reader (3) comprising a
 second communication protocol stack and said smart card (2) comprising a
 third communication protocol stack, allowing communications between said
 user station (1) and a remote server (4) connected to said network and
 communications between said user station (1) and said smart card (2) via
 said smart card reader (3), said user station (1) also comprising means for
 generating requests (10) transmitted to said remote server (4), characterized
 in that said remote server (4) [is equipped with storage means] comprises a
storage device (41, 42) for storing data and/or instructions allowing the
 generation of specific commands upon reception of specific requests
 originating from said request generating means (10) and their transmission to
 said user station (1), and in that said user station (1) [is equipped with an
 additional so-called] comprises a specialized module (8) forming an interface
 between said first and second protocol stacks and [designed] adapted to
 translate said specific commands received by said user station (1) in
 conformity with a first given communication protocol, into commands that
 conform to a second given communication protocol, in order to transmit them,
 using said second given communication protocol, via said smart card reader

22 (3) to said smart card (2), so as to activate at least one given function of at
23 least one application stored in said smart card (2).

1 31. (Old Claim 15) [System] A system architecture according to claim
2 [14] 30, characterized in that said remote server (4) further comprises an
3 HTTP server (40), first storage [means] device (42) for storing said data
4 and/or instructions allowing the generation of specific commands, and second
5 storage [means] device (41) for storing data constituting display pages in
6 HTML language.

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32. (Old claim 16) [Application of the system architecture according to claim 14 to the creation of a] A smart card demonstrator (2), using the system architecture according to claim 30, said user station (1) comprising a display screen (5) for displaying data transmitted by said remote server (4) to said supplementary module (8) and characteristic data of a context of said [chip] smart card (2), using a third given communication protocol, said characteristic data being generated by said remote server (4) upon reception of data sent by said smart card (2), using said second given communication protocol, translated by said supplementary module (8) and transmitted to [this] said remote server (4) using said first given communication protocol.--

T3006-906838

Abstract showing the changes using brackets and underlining
follows:

[METHOD AND ARCHITECTURE FOR REMOTE MONITORING OF A USER
STATION VIA AN INTERNET-TYPE NETWORK AND APPLICATION THEREOF
TO A SMART CARD DEMONSTRATOR

Inventor: Renaud MARIANA

Applicant: Bull CP8]

--ABSTRACT

The invention concerns a method and an architecture using a smart card (2) for remote control, via an internet-type network (*R/I*), of a user station (1) comprising a smart card reader (3). The data required to control the station (1) are stored (41) in a remote server (4). The station (1) comprises a web-type browser (10) that transmits requests to the server (4). In response, the latter generates specific commands designed for the smart card (2). The station (1) comprises a specialized software module (8) forming an interface between the smart card reader (3) and the internet network (*R/I*). This module (8) translates the specific commands into commands in conformity with the ISO 7816-4 standard, and transmits them to the smart card (2) in order to activate an application of the latter. The server (4) can also store (42) HTML pages. The smart card (2) transmits, via the specialized software module (8), a response to the remote server (4), which processes it and retransmits the data to the browser (10) for display on a screen (5). The invention is particularly applicable to a smart card (2) demonstrator.

[FIG. 3]

09/856700

JC18 Rec'd PCT/PTO 25 MAY 2001

T2146-907272-US 3854/BC(PCT)

IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (D.O./E.O./US)

Applicant: Renaud MARIANA

International
Application No.: PCT/FR00/02642

International
Filing Date: 25 September 2000

U.S. Serial No.: To be Assigned

U.S. Filing Date: May 25, 2001

For: **METHOD AND ARCHITECTURE FOR REMOTE
CONTROL OF A USER STATION VIA AN INTERNET-
TYPE NETWORK AND APPLICATION THEREOF TO A
SMART CARD DEMONSTRATOR**

McLean, Virginia

PROPOSED DRAWING CORRECTIONS

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

Applicant requests approval of the drawing corrections on Figs. 1 – 2 as
shown in red on the attached two (2) sheets.

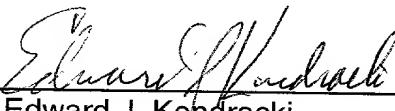
09/856700-000001

The proposed corrections only comprise translating the French terms into English and removing the headings "1/2 – 2/2" to conform the drawings to U.S. practice.

Respectfully submitted,

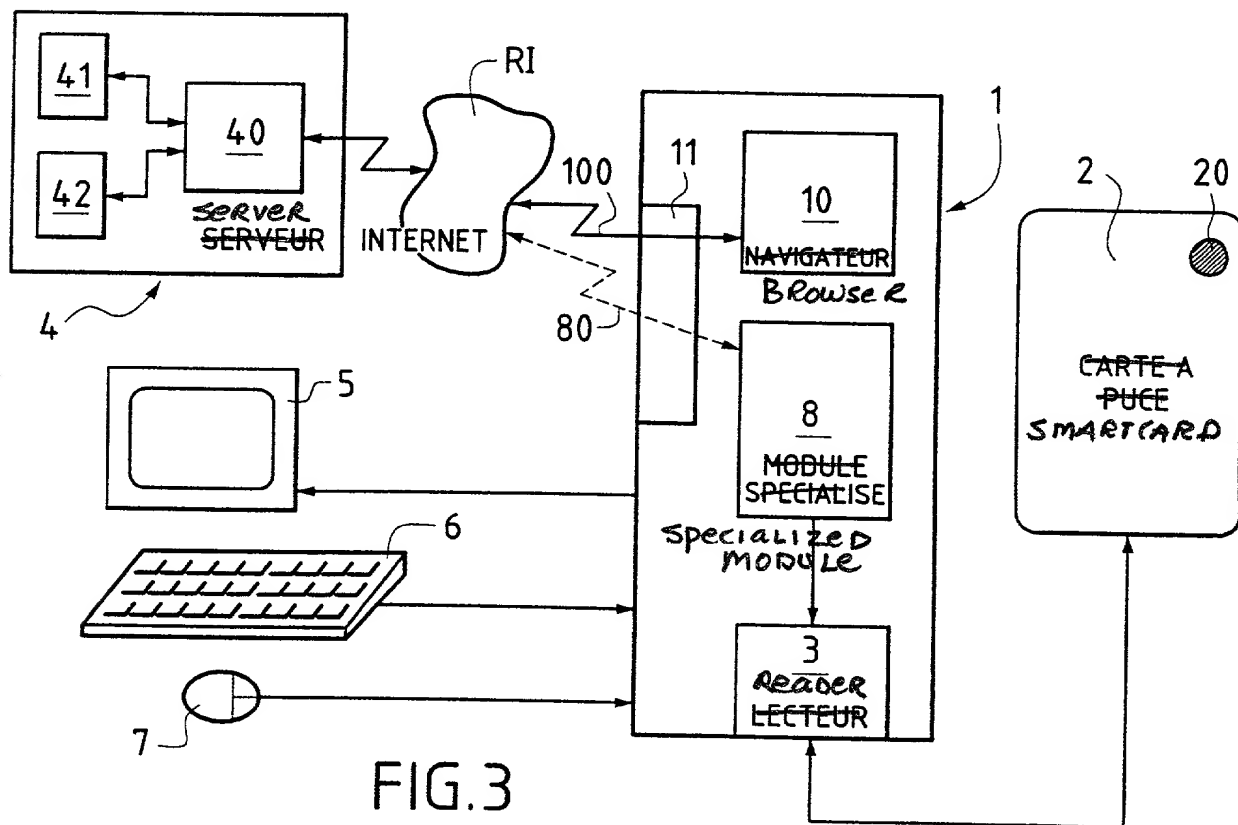
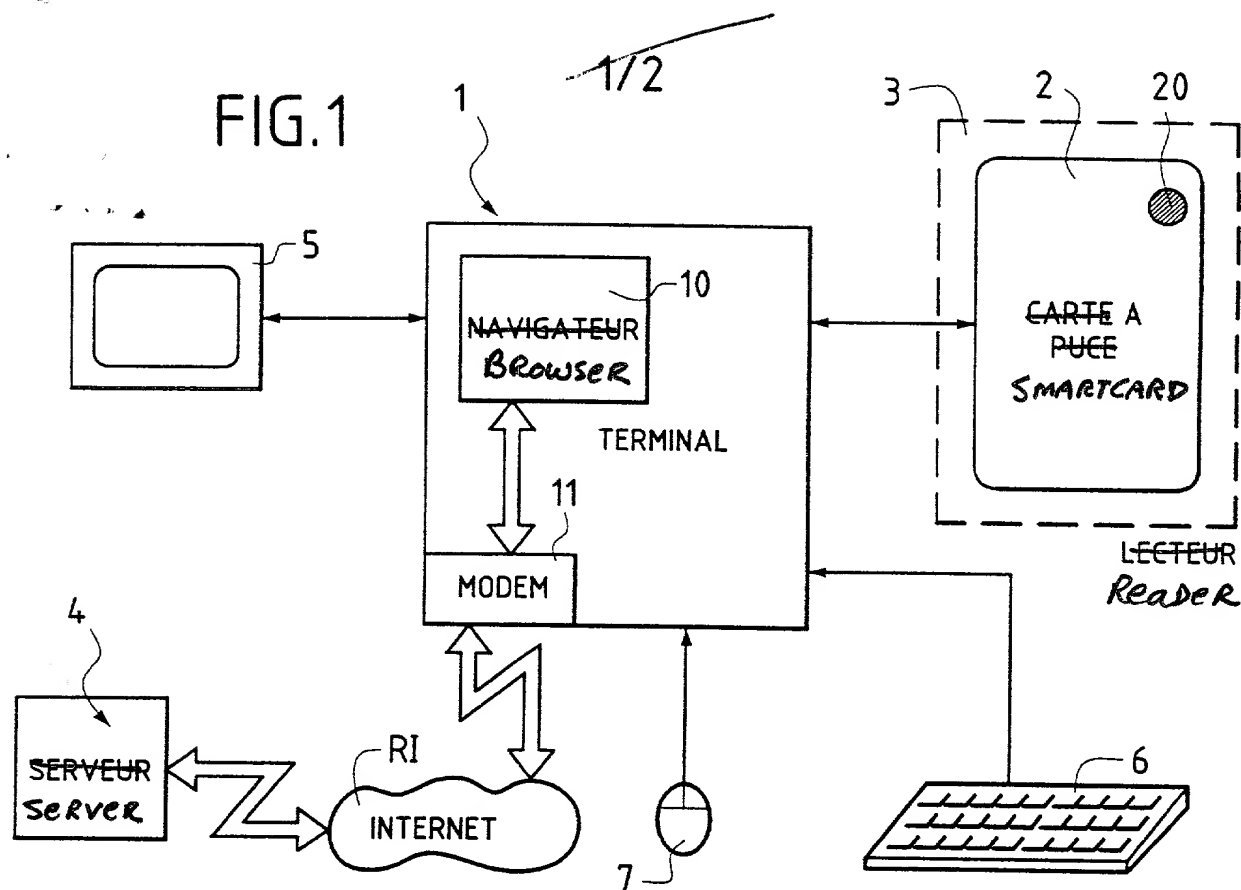
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FIG.1



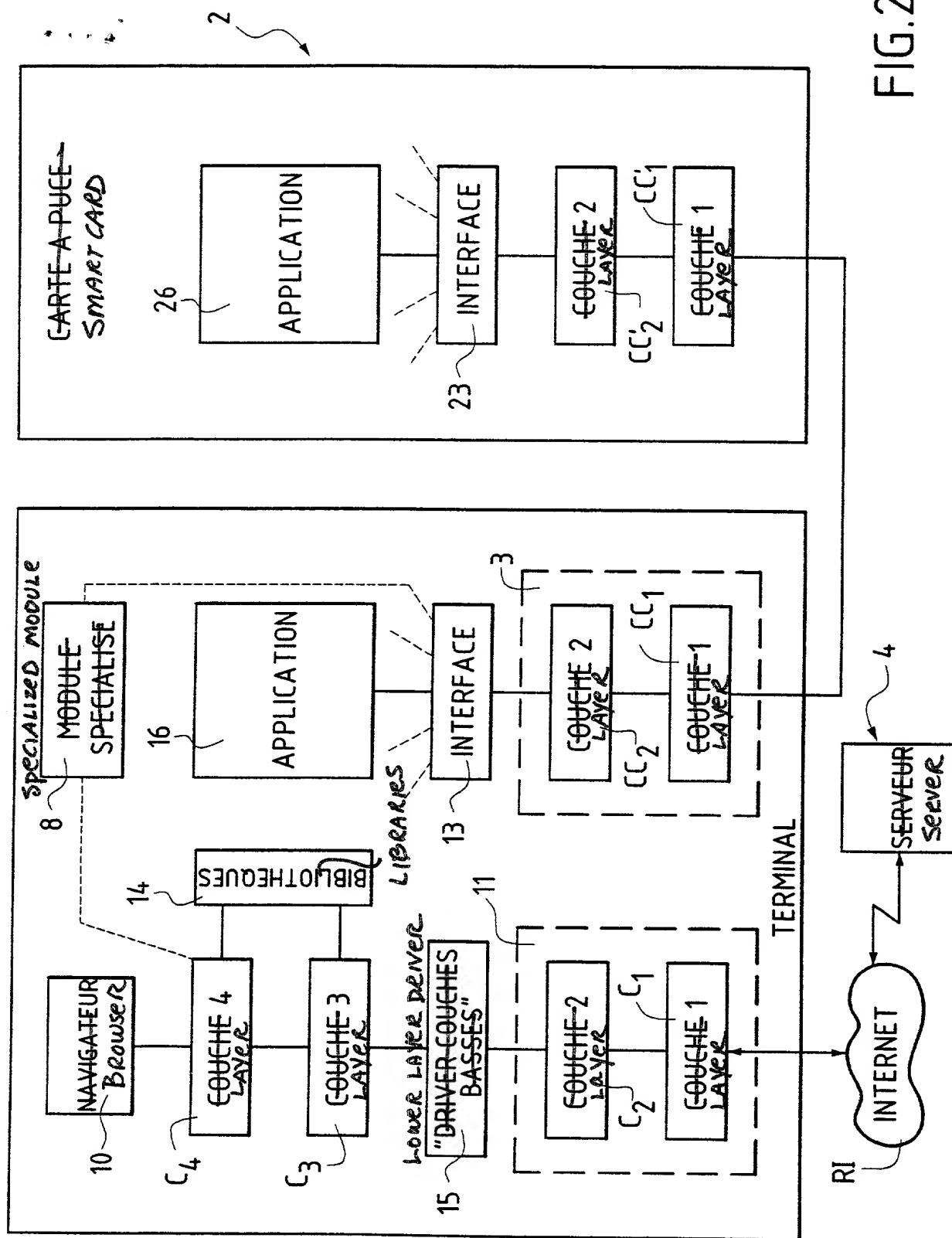


FIG. 2

2/PRTS

09/856700

JC18 Rec'd PCT/PTO 2 5 MAY 2001

**METHOD AND ARCHITECTURE FOR REMOTE MONITORING OF A
USER STATION VIA AN INTERNET-TYPE NETWORK AND
APPLICATION THEREOF TO A SMART CARD DEMONSTRATOR**

5 The invention relates to a method for remote control of a user station equipped with a smart card reader via an internet type network.

The invention also concerns an architecture for implementing such a method.

The invention is particularly applicable to a smart card demonstrator.

10 In the field of the invention, the term "user station" should be understood in a general sense. The aforementioned station can particularly be constituted by a personal computer running on various operating systems such as WINDOWS or UNIX (both of which are registered trademarks). It can also be constituted by a workstation, a portable computer or a so-called card terminal, said to be dedicated. Hereinafter, a user station of this type will simply be called a "terminal."

15 Likewise, in the field of the invention, the term "internet network" includes, in addition to the Internet *per se*, private enterprise or similar networks called "intranets" and the networks that extend them to the outside, called "extranets."

20 Smart cards are used in various fields: banking and health care applications, as so-called electronic purses, etc. Moreover, several applications can coexist in a smart card (multi-application card).

25 When a new application is made available in a smart card, it is desirable to be able to use terminals, whether dedicated or not, to organize training sessions, particularly for presenting the functionalities of this card and its capabilities. These training or presentation sessions can be aimed at various audiences: maintenance personnel, vendors, or even end users. The educational content and the form of the presentations to be provided should generally be adapted to the intended audience.

30 In the prior art, the solutions traditionally proposed for creating a smart card demonstration station, which hereinafter will simply be called a "demonstrator," use a personal computer-based configuration and specific programs to control the terminal and its smart card reader. These programs are most often written in a language of the Basic, C++ or Java (registered trademarks) type.

This solution, while it generally does not require equipment that is particularly expensive (a simple personal computer), is not necessarily free of drawbacks, including the following:

- the aforementioned specific programs are most often voluminous;
- their installation is also lengthy and complex;
- it is necessary to save the newly installed programs in the machine and, during the first installation, if the machine does not have a program that allows them to be saved on a specialized peripheral, of the IOMEGA (registered trademark) type or the like, it is also necessary to install such a program;
- for each update of the application stored in the smart card, or when the content of the demonstration is different (adapted to the audience in question, for example), it is necessary to reiterate the processes mentioned above; and
- for the operators, learning the operating mode of a piece of software written in the languages mentioned above takes time, since their graphical interfaces are not standardized; the operators must therefore be specialized, which can entail additional costs.

It must be added that if several terminals are used for demonstration purposes, the aforementioned drawbacks are repeated for each of these terminals; in particular, it is necessary to load the same program x times, if x is the number of terminals, and the latter can be quite remote from one another. Even if procedures for downloading from a central server are used, it is still necessary to make sure that the version of the software present in all the terminals is identical. Specific administrative procedures are therefore required.

Furthermore, with the development of the internet network, it is desirable to be able to control the presentation terminals remotely, via this precise network, using standard transmission protocols used in the latter.

Some solutions of this type have been proposed. However, these solutions are not free of drawbacks, either. They essentially make it necessary to download or install in the terminal, for each demonstration application, a specific piece of software known as a "plug-in," generally written C language or C++, so that the terminal can communicate with the smart card via a smart card reader. The aforementioned pieces of software suffer from the same problems as those mentioned above: voluminous code that must be installed or downloaded prior to each demonstration, non-

standardized graphical interfaces, etc. As before, it is essentially impossible to install a plug-in once and for all, since the latter specifically depends not only on the type of browser used, but on the application being demonstrated and the versions of the control programs.

5 The invention seeks to eliminate the drawbacks of the methods and devices of the prior art, some of which have just been mentioned, while meeting the needs that have arisen.

 The object of the invention is to provide a method and a system architecture for controlling a terminal equipped with a smart card reader and connected in a
10 conventional way to an internet-type network, particularly in order to perform demonstrations of at least one application stored in the smart card.

 To this end, according to an essential characteristic of the invention, the control software specific to each of the demonstration applications is hosted by a remote web-type server connected, also in a conventional way, to the internet
15 network. The terminal itself is equipped with a particular piece of software that will hereinafter be called "specialized." Within the context of the invention, the term "specialized" used for this piece of software indicates merely that it is a non-standard piece of software that must be installed in the terminal, but not in any case that it is specific to the application being demonstrated. On the contrary, this piece of software,
20 from the point of view of an application, is entirely generic and is independent from the latter, no matter what it is.

 Moreover, according to another important characteristic, the size of the piece of software required can be very small, for reasons linked to the nature of the functions devolved to it, which will be explained below. Because of this, it can be
25 installed once and for all in the terminal and reside there permanently, without significantly altering the computing resources specific to the terminal, including its memory capacity, particularly if the latter is used for other tasks.

 The invention therefore offers many advantages, including the following:

- simplified updating of the demonstrations, since only the programs hosted by
30 the remote server need be modified; specific intervention in the terminals is no longer necessary;
- a fast and simple configuration of the terminal, which can be a standard type of microcomputer equipped with a browser, which can also be of a common type on

the market, often pre-installed, for the same reasons as mentioned above (the data specific to the demonstration itself being located in the server);

- the graphical interface is also standardized, since it is provided by the browser, whose characteristics and operating mode are familiar to the operator of the terminal, even if the latter does not have any particular programming or computer expertise; and

- the added cost and the increase in complexity due to the specific provisions of the invention are negligible, since they are reduced to just one installation of a piece of specialized software of small size, an installation which can moreover, under certain circumstances, be performed once and for all.

It follows that the present system offers great universality, since the terminal can virtually perform all of an enterprise's or a company's demonstrations, no matter what the smart card to be presented, the only condition being that the latter be of a standardized type so as to be compatible with the terminal, which itself is outside the strict scope of the invention. The system also provides great reliability.

The main subject of the invention is a method for remote control of a user station via an internet-type network, said user station being equipped with a smart card reader and comprising a first communication protocol stack, said smart card reader comprising a second communication protocol stack and said smart card comprising a third communication protocol stack, allowing communications between said user station and a remote server connected to said network and communications between said user station and said smart card via said smart card reader, said user station also comprising means for generating requests transmitted to said remote server, characterized in that it comprises:

- a first preliminary phase for storing in said remote server data and/or instructions allowing the generation of specific commands upon reception of specific requests originating from said request generating means and their transmission to said user station;

- a second preliminary phase for loading into said user station a piece of specialized software forming an interface between said first and second protocol stacks, and designed to translate said specific commands received by said user station into commands that conform to a first given communication protocol;

- and at least the following steps:

- a/ the transmission to said remote server of at least one specific request;
b/ the generation by said remote server, upon reception of such a request,
of at least one of said specific commands and their transmission to said
user station using a second given communication protocol;
c/ the reception of said specific command in said user station, its
interception by said piece of specialized software, and its translation into
said first given communication protocol;
d/ the transmission of said translated command to said smart card using
said first given communication protocol, via said smart card reader; and
e/ the activation by said translated command of at least one given function
of at least one application stored in said smart card, in order to perform
said control.

Another subject of the invention is a system architecture for implementing this method.

More particularly, the invention applies to the application of the method and the system architecture to a smart card demonstrator.

The invention will now be described in greater detail by referring to the attached drawings, in which:

- Fig. 1 schematically illustrates an exemplary smart card-based application system architecture according to the prior art;
- Fig. 2 illustrates in greater detail the logical architecture of such a system; and
- Fig. 3 illustrates an exemplary architecture for the remote control of a smart-card based application system according to the invention.

Hereinafter, without in any way limiting its scope, we will concentrate on the preferred application of the invention unless otherwise indicated, i.e., its application to a smart card demonstrator.

First of all, let us briefly review the essential technical characteristics of a smart card-based application system. It generally includes the following main elements:

- a smart card;
- a host system constituting the aforementioned terminal;

- a communication network i.e. the internet network in the preferred application;

- and an application server connected to the internet network.

Fig. 1 schematically illustrates an exemplary architecture of this type. The terminal 1, for example a personal computer, includes a smart card 2 reader 3. This reader 3 may or may not be physically integrated into the terminal 1. The smart card 2 comprises an integrated circuit 20 whose input-output connections appear on the surface of its substrate so as to allow a supply of electric power and communications with the terminal 1. The latter comprises circuits 11 for access to the internet network. This may involve a modem for connecting to a switched telephone line or an integrated services digital network (ISDN), for example via an Internet service provider (or ISP).

The terminal 1 naturally comprises all the circuits and elements required for its operation, which are not represented in order to keep the drawing simple: central processor, random access and read-only memories, magnetic disk mass storage, diskette and/or CD-ROM drive, etc.

Normally, the terminal 1 is also connected to standard peripherals, which may or may not be integrated, such as a display screen 5, a keyboard 6 and a pointer 7, for example a mouse.

In the field of the invention, it is specifically due to the cooperation of these terminals that the demonstration can be performed.

The terminal 1 can be placed in communication with servers connected to the network *RI*, one of which 4 is illustrated in Fig. 1. The access circuits 11 place the terminal 1 in communication with the servers 4 using a particular piece of software 10 called a browser. The latter makes it possible to access various applications distributed throughout the network *RI*, generally in a client-server mode.

Normally, communications in networks take place in accordance with protocols that conform to standards comprising several superposed software layers. In the case of an internet-type network *RI*, communications take place using protocols that are specific to this type of communication, but that also comprise several software layers. The communication protocol is chosen based on the application specifically intended: web page queries, file transfers, email, forums or news, etc.

The architecture of communication networks is described by various layers. For example, the OSI (Open Systems Interconnection) standard defined by the ISO comprises seven layers, which go from the so-called lower layers (for example the so-called physical layer that supports the physical transmission) to the so-called upper layers (for example the so-called application layer), passing through intermediate layers, including the so-called transport layer. A given layer offers services to the layer immediately above it and requires other services from the layer immediately below it, via appropriate interfaces. The layers communicate by means of primitives. They can also communicate with layers of the same level. In certain architectures, one or more of these layers may be nonexistent.

In an internet environment, there are five layers, more precisely, going from the top layer to the bottom layer, the applications layer (http, ftp, email, etc.), the transport layer (TCP), the network address layer (IP), the data link layer (PPP, Slip, etc.) and the physical layer.

We will now describe in greater detail a typical example of an architecture for a smart-card based application system according to the prior art, with reference to Fig. 2. More specifically, this figure describes the layered logical architecture.

The terminal 1 comprises the circuits 11 for access to the network *RI*, which contain the lower software layers C_1 and C_2 corresponding to the aforementioned physical and data link layers.

Also represented are the upper layers C_3 and C_4 corresponding to the network address (IP) and transport (TCP) layers. The uppermost application layer (http, ftp, email, etc.) is represented by a web browser 10 of any type, preferably a standard type sold on the market.

The interface between the lower layers C_1 and C_2 and the upper layers C_3 and C_4 is constituted by a software layer 15 generally called a lower layer driver. The upper layers C_3 and C_4 are supported by this interface and are implemented by means of libraries of specific functions or network libraries 14, with which they correspond. In the case of the Internet, TCP/IP is implemented by means of libraries called "sockets."

This organization allows the browser 10 to present requests 10 to a remote server 4, in order to consult web pages (HTTP protocol), transfer files (FTP protocol) or send email (email protocol).

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The terminal 1 also comprises the smart card reader 3, which may or may not be integrated. In order to communicate with the smart card 2, the card reader also contains the two lower layers CC₁ (physical layer) and CC₂ (data link layer), which play a role similar to the layers C₁ and C₂. The software interfaces with the layers CC₁ and CC₂ are described, for example, by the PC/SC specification ("part 6, service provider"). The layers CC₁ and CC₂ themselves are described by the ISO 7816-1 and 7816-4 standards.

An additional software layer 13 forms an interface between the application layers, indicated by the same reference 16, and the lower layers CC₁ and CC₂. The main function devolved to this layer 13 is a multiplexing/demultiplexing function.

The architecture of the terminal 1 described up to this point is entirely common in the prior art. Fig. 2 also represents, in broken lines, an additional element 8, which will be called a specialized module and is specific to the invention. This module 8 is disposed between the layer C₄ and the interface 13. The function of this module will be explained below.

On the smart-card 2 end, the organization is similar to that of the terminal 1, including the presence of two lower layers, referenced CC'₁ (physical layer) and CC'₂ (data link layer), as well as an interface layer 23, entirely similar to the layer 13. This layer 23 provides an interface between the aforementioned protocol layers CC'₁ and CC'₂ and one or more application layers, represented in the form of a single module referenced 26.

Communications between the terminal 1 and the smart card 2 take place by means of standardized commands.

Various protocols may be used, including the following non-exhaustive examples:

- the ETSI GSM 11.11 recommendation;
- the protocol defined by the ISO 7816-3 standard, in character mode T=0;
- the protocol defined by the ISO 7816-3 standard, in block mode T=1;
- or the protocol defined by the ISO 3309 standard, in HDLC (for High-Level Data Link Control procedure) frame mode.

Within the scope of the invention, the ISO 7816-3 protocol is preferably used, in block mode.

In an intrinsically known way, each protocol layer is associated with a certain number of primitives that allow data exchanges between layers of the same level and from one layer to another.

In the current state of the art, it is not possible to place the smart card in direct communication with a remote server 4 via the internet network *RI*. Also, as noted, in order to perform a demonstration of one or more applications stored in the smart card 2, it has been proposed in the prior art to either implement specific pieces of software in the terminal 1, or download them from a remote server in the form of plug-ins. These solutions have many drawbacks, which have already been mentioned.

We will now describe a system architecture according to the invention that makes it possible to eliminate these drawbacks, with reference to Fig. 3.

With the exception of the specific provisions of the invention, the architecture presented in Fig. 3 maintains the essential hardware and software configuration of Figs. 1 and 2. Also, only the elements that are indispensable to a proper understanding of the invention are represented. Moreover, the common elements of these figures have the same references and will only be re-described as necessary.

It should also be clearly understood that the smart card 2 does not require any adaptation. The communications between the terminal 1 and the latter take place, as in the prior art, using the sets of standardized commands that have been succinctly described.

Also, in order to keep the drawing simple, the various communication protocol layers, intrinsically common in the prior art, are not represented.

According to a first important characteristic of the invention, the essential information and codes required to perform a demonstration of a particular smart card, and more generally, to control such a smart card, are located not only in the terminal 1, in whatever form, (program or specific plug-ins downloaded), but in the remote server 4.

According to a second important characteristic of the invention, a specialized module 8 is provided in the terminal 1. However, it should be clearly understood that the term "specialized" has a specific meaning within the scope of the invention. The module 8 is disposed between the layer C_4 of the protocol stack of the terminal 1 and the interface 13 (see Fig. 2), as indicated above. It is advantageously constituted by a piece of software and its essential functions are to provide an interface between the

internet network *RI* and the smart card reader 3, and to translate commands received from the server 4 via the internet network *RI* into standardized commands that conform to the aforementioned ISO standards. In this sense, the module 8 is "generic" in nature, since it is completely independent from the application or applications stored in the smart card 2. Moreover, given the functions devolved to it, the quantity of code required is very small in practice.

In a more detailed way, the remote server 4 also comprises, for example, conventional computer data processing means (not represented), an HTTP server *per se*, and storage devices 41 and 42, which have arbitrarily been represented separately.

A first storage device 41 makes it possible to store display pages that will be referred to as "static," for example in HTML or another format (XML, etc.).

The second storage device, referenced 42, is more particularly designed to storing data representing the contexts of the smart card or cards that are subject to a demonstration. A "smart card context" is a representation in memory of the smart card 2 at the remote server level 4. The smart card context comprises, for example, the version number of the operating system controlling the smart card. The storage device 42 also makes it possible to store data or instructions that make it possible to generate a set of specific commands required for the aforementioned smart card 2 demonstrations. These specific commands will be intercepted by the specialized module 8 and translated so that they can be understood by the smart card 2 when they are transmitted to it.

The main steps of the method according to the invention are described below.

In an intrinsically conventional way, the terminal specifically makes it possible to power up the smart card, via the smart card reader 3, and more generally, to initialize it. More precisely, it is the specialized module 8 that powers up the smart card 2, by means of a script executed in the remote server 4. The web browser 10 makes it possible, in an equally conventional way, to present requests to the remote server 4, via a modem 11 or a similar device, a conventional transmission channel 100 (a telephone line or another type) and the internet network *RI*. The transmission path normally passes through a service provider, possibly a firewall and/or a so-called proxy system (not represented). For example, the request presented makes it possible

to display the home page of a web site on the screen 5, and then to navigate this site through successively displayed pages based on the options presented.

The request transmitted to the remote server 4 can also make it possible to display pages in HTML language related to the smart card 2, pages associated with the current demonstration and stored in the storage device 41.

In a way that is more specific to the invention, the request transmitted to the remote server 4 results in the generation by the latter of a set of specific commands designed to control the smart card 2 during the demonstration.

In essence, certain specific requests are recognized as such by the server 40 and are processed as part of the context of the smart card stored in the device 42. It must be noted that the context of the smart card 2 is updated, for example during the powering up of the smart card 2, by using the so-called RESET signal of the latter.

In an intrinsically conventional way, the generation of the commands generated by the server 40 can result from the execution of a CGI (Common Gate Interface) type script. This is a process that is well known to one skilled in the art in the field of client-server communications through the Internet. For example, when a formulary type of request is transmitted to a web server, it is transmitted via a gateway to a directory normally called "cgi-bin" in which scripts are stored. The data resulting from the execution of a particular script are retransmitted through the reverse path and sent to the client that transmitted the request, in this case in the form of specific commands transmitted to the terminal 1.

However, as noted, the smart card 2 cannot communicate directly with the internet network *RI* and, in particular, can neither receive, nor *a fortiori* interpret the commands transmitted by the server 40. These commands are normally transmitted in packets, the destination IP address being that of the terminal 1, i.e. the client. Likewise, unless a specialized plug-in is installed in the browser 10, the latter cannot communicate directly with the smart card 2.

The specialized module 8 forms an interface, on a first end, with the upper protocol layers of the terminal 1, i.e. C_4 (see Fig. 2). The specific commands received by the terminal 1 are intercepted and "understood" by the module 8 to be intended for it. According to one of the essential characteristics of the invention, the latter translates them into a set of commands that conform to the aforementioned ISO standards. The other commands received are not processed by the module 8, and are

transmitted, in conventional fashion, to the browser 10. The server 4 has a separate connection 80 with the specialized module 8. This connection can be secure and can support an encryption of the so-called SSL (Secure Socket Layer) type.

Schematically, in order to better illustrate the method specific to the invention, the communication established between the internet network and the module 8 is illustrated by a separate channel 80, represented in dotted lines. However, it should be understood that all the communications pass through the usual communication channels, and take place in conformity with standardized transmission protocols (for example TCP/IP for the specialized module 8 and HTTP for the browser 10).

The module 8 also forms an interface, on a second end, with the smart card reader 3. Hence, it transmits to the latter the commands it has received and translated. These commands are decrypted if necessary (if the link is secure) and translated. They are then understandable by the smart card 2. In essence, after translation, the commands retransmitted to the smart card 2, via the reader 3, are in the ISO 7816-4 format and are therefore compatible with the communication mode used between the smart card reader 3 and the smart card 2.

The commands thus transmitted to the smart card 2 make it possible, for example, to power up the smart card 2, and to activate the application or applications stored in the latter, for example in order to execute particular functions and/or to read specific files stored in the latter. In return, the smart card 2 transmits to the specialized module 8, via the smart card reader 3, commands and/or instructions that make it possible, in a subsequent step, to display on the screen 5 various data specific to the smart card 2 being demonstrated. However, these commands and/or instructions are first translated by the specialized module 8, transmitted to the server 4 and retransmitted to the terminal 1 and to the browser 10.

The specialized module 8 is a server of the TCP/IP type that receives TCP/IP requests originating from a script executed in the server 40. The communication with the specialized module 8 is inserted into a request between the browser 10 and the server 40. This script is responsible for executing a series of commands addressed to the specialized module 8. The latter then acts like a TCP/IP server and returns a response for each TCP/IP command received from the server 40. The aforementioned script, which can use a process of the so-called CGI (Common Gateway Interface), or Java Servlet (registered trademark) type, processes all of the TCP/IP responses from

the specialized module 8. Then, it formats an HTTP type response transmitted to the browser 10. Thus, a user (not represented), for example the holder of the smart card 2, can interact with this smart card 2 by means of the browser 10, scripts associated with the server 4, the specialized module 8 and the smart card reader 3.

5 The browser 10 makes it possible to display the contents of the smart card 2.

It is therefore clear that the smart card 2 is actually directly controlled by a CGI type process and a card context stored in the server 4. Everything therefore takes place as though the smart card 2 were in direct communication with the latter and receiving requests from the internet network *RI*.

10 To illustrate the concepts, in order to perform the tasks that are devolved to it, the module 8 typically has a size of 50 KB. It can be loaded into the storage means (not represented) with which the terminal 1 is provided prior to the start of a demonstration, very quickly by reason of its very small size, by means of a diskette for example, or from any other recording medium. But for the same reason, it can also
15 be left resident without any disadvantages, after an initial load, without significantly burdening the resources of the terminal, particularly its storage resources. Again by reason of its small size, it is also possible to download it from the remote server 4, or from any other web server. With the current technologies, even when using a simple switched telephone line having a fast modem (56K), downloading a program of this
20 size requires only several tens of seconds. This method has the advantage of always having the latest available version of the specialized program constituting the module 8.

It is easy to see that it is not necessary for the operator to have any particular programming expertise. The graphical interface, which is that of the web browser 10,
25 which can advantageously be a well-known type sold on the market, is entirely familiar to him. He need only know the Internet address of the web site to which he must connect, an address which can be pre-stored in the browser 10, in a list of so-called "favorites" or similarly named elements, generally known as "bookmarks."

Since the server 4 can store, as indicated, so-called static pages in HTML
30 language, the various steps of the demonstration to be performed can be displayed in the form of a menu constituted by hyperlinks, the operator selecting one of the options presented by means of the keyboard 6, or clicking on them by means of the mouse 7.

However, in order to further facilitate the running of the demonstration, and to make it more automated, it is also possible to download into the browser 10 an applet, for example in the form of a piece of software in JAVA language whose size is very small. This applet makes it possible to control the running of the demonstration by transmitting the necessary requests to the server 4, which in turn generates commands specific to the specialized module 8, then transmits the result of calculations it performs to the browser 10, in the form of an HTTP response. In this case, the essential work of the operator can be summarized as connecting to the server 4 and possibly, if necessary, in an initial phase, by loading or downloading the piece of software constituting the specialized module 8 after having powered up the terminal 1 and having inserted the smart card 2 into the reader 3.

By reading the above, it is easy to see that the invention clearly achieves the objects set forth.

The smart card does not require any adaptation. The demonstration terminal can be a microcomputer sold on the market or a similar device. It doesn't require any particular adaptation either. The only constraint specific to the invention is very limited: it is merely necessary to load, in a preliminary phase, a piece of software of small size, a piece of software that is entirely independent from the application or applications stored in the smart card during a demonstration. As indicated, this piece of software can be loaded once and for all. It can also be downloaded from the internet network. It follows that the configuration of a demonstration station is reduced to its simplest expression and does not require any particular expertise, which also contributes to making the method particularly economical.

The graphical interface is familiar to any operator, since it is the one associated with a web browser, which can advantageously be a common type.

The method allows great flexibility and great universality. In fact, the data specific to one or more demonstrations is stored in a remote server and is capable of being used by a large number of stations. The updating of a given demonstration and/or the addition of one or more demonstrations can be done very simply, since only the remote server storing the data and the programs required for these demonstrations is involved.

The method also allows an interactive mode between pages, for example of the HTML type, provided by the remote server, and information and data originating

from the smart card, under the control of commands and requests originating from this same server, and transmitted, after translation, to the smart card by the piece of specialized software, via the reader.

It should be clear, however, that the invention is not limited to just the exemplary embodiments explicitly described, particularly in relation to the architecture illustrated by Fig. 3.

Finally, although the method and the architecture have been described in detail in the case of a smart card demonstrator, the invention is not in any way limited to this particular application.

The invention is applicable whenever one wishes to control a station comprising a terminal and a smart card reader, via the Internet or a similar type of network: intranet, extranet.

CLAIMS

1 1. Method for remote control of a user station via an internet-type
2 network, said user station being equipped with a smart card reader and comprising a
3 first communication protocol stack, said smart card reader comprising a second
4 communication protocol stack and said smart card comprising a third communication
5 protocol stack, allowing communications between said user station and a remote
6 server connected to said network and communications between said user station and
7 said smart card via said smart card reader, said user station also comprising means for
8 generating requests transmitted to said remote server, characterized in that it
9 comprises:

10 - a first preliminary phase for storing (42) in said remote server (4) data and/or
11 instructions allowing the generation of specific command upon reception of specific
12 requests originating from said request generating means (10) and their transmission to
13 said user station (1);

14 - a second preliminary phase for loading into said user station (1) a piece of
15 specialized software (8) forming an interface between said first and second protocol
16 stacks and designed to translate said specific commands received by said user station
17 (1) into commands that conform to a first given communication protocol;

18 - and at least the following steps:

19 a/ the transmission to said remote server of at least one specific request;

20 b/ the generation by said remote server (4), upon reception of such a
21 request, of at least one of said specific commands and their transmission to
22 said user station (1) using a second given communication protocol;

23 c/ the reception of said specific command in said user station (1), its
24 interception by said piece of specialized software (8) and its translation
25 into said first given communication protocol;

26 d/ the transmission of said translated command to said smart card (2) using
27 said first given communication protocol, via said smart reader (3); and

28 e/ the activation by said translated command of at least one given function
29 of at least one application (26) stored in said smart card (2), in order to
30 perform said control.

2. Method according to claim 1, characterized in that said data and/or instructions stored in said remote server (4) and allowing the generation of specific commands comprise so-called smart card context data, said context being a representation, in the memory of said remote server (4), of said smart card (2) present in said user station (1).

3. Method according to claim 2, characterized in that, said smart card (2) being controlled by an operating system associated with a version number, said context comprises at least said version number of the operating system.

4. Method according to claim 1, characterized in that it also comprises, subsequent to said activation step, at least:

- f/ a step for transmitting data and/or instructions between said smart card (2) and said terminal (1), via said smart card reader (3), said transmission being performed using said first given communication protocol;
- g/ a step for the translation of said data and/or instructions by said piece of specialized software (8) and its transmission to said remote server (4), using said second given communication protocol;
- h/ a step for the processing of this data and/or these instructions by said remote server (4);
- i/ a step for the generation by this server (4) of data characteristic of a configuration of said smart card (2) and/or of an application stored in said smart card (2), and for the transmission of said characteristic data to said terminal (1) using a third given communication protocol; and
- j/ a step for the display, on a display screen (5) connected to said terminal (1), of said characteristic data.

5. Method according to claim 4, characterized in that, said request generating means being constituted by a web type browser (10), it comprises a third preliminary phase consisting of storing in said remote server (4) data constituting so-called static display pages, and subsequent steps comprising the transmission, using said third given communication protocol, upon reception of specific requests generated by said browser (10), of all or some of this data to said terminal in order to

7 display pages of information associated with said smart card (2) on said display
8 screen (5).

1 6. Method according to claim 5, characterized in that it comprises a
2 fourth preliminary phase consisting of generating, by means of said browser (10), a
3 particular request transmitted to a remote server connected to said internet network
4 (RI), in order to download a particular piece of software called an applet into the
5 browser (10), so as to automate all or some of said steps a/ through j/.

1 7. Method according to claim 6, characterized in that said applet is
2 written in JAVA (registered trademark) language.

1 8. Method according to claim 1, characterized in that said specific
2 commands are the result of the execution of a CGI type script in said remote server
3 (4).

1 9. Method according to claim 1, characterized in that said piece of
2 specialized software (8) is loaded into said user station (1) during said first
3 preliminary phase, from a data recording medium.

1 10. Method according to claim 1, characterized in that said piece of
2 specialized software (8) is downloaded into said user station (1) during said first
3 preliminary phase, from a remote server, via said internet network (RI).

1 11. Method according to claim 1, characterized in that said first given
2 communication protocol is of the TCP/IP type.

1 12. Method according to claim 1, characterized in that said second given
2 communication protocol conforms to ISO standards 7816-1 through 7816-4.

1 13. Method according to claim 4, characterized in that said third given
2 communication protocol is of the HTTP type.

1 14. System architecture for remote control of a user station (1) via an
2 internet-type network (*RI*), said user station (1) being equipped with a smart card
3 reader (3) and comprising a first communication protocol stack, said smart card reader
4 (3) comprising a second communication protocol stack and said smart card (2)
5 comprising a third communication protocol stack, allowing communications between
6 said user station (1) and a remote server (4) connected to said network and
7 communications between said user station (1) and said smart card (2) via said smart
8 card reader (3), said user station (1) also comprising means for generating requests
9 (10) transmitted to said remote server (4), characterized in that said remote server (4)
10 is equipped with storage means (41, 42) for storing data and/or instructions allowing
11 the generation of specific commands upon reception of specific requests originating
12 from said request generating means (10) and their transmission to said user station (1),
13 and in that said user station (1) is equipped with an additional so-called specialized
14 module (8) forming an interface between said first and second protocol stacks and
15 designed to translate said specific commands received by said user station (1) in
16 conformity with a first given communication protocol, into commands that conform to
17 a second given communication protocol, in order to transmit them, using said second
18 given communication protocol, via said smart card reader (3) to said smart card (2), so
19 as to activate at least one given function of at least one application stored in said smart
20 card (2).

1 15. System architecture according to claim 14, characterized in that said
2 remote server (4) comprises an HTTP server (40), first storage means (42) for storing
3 said data and/or instructions allowing the generation of specific commands, and
4 second storage means (41) for storing data constituting display pages in HTML
5 language.

1 16. Application of the system architecture according to claim 14 to the
2 creation of a smart card demonstrator (2), said user station (1) comprising a display
3 screen (5) for displaying data transmitted by said remote server (4) to said
4 supplementary module (8) and characteristic of a context of said chip card (2), using a
5 third given communication protocol, said characteristic data being generated by said
6 remote server (4) upon reception of data sent by said smart card (2), using said second

- 7 given communication protocol, translated by said supplementary module (8) and
- 8 transmitted to this remote server (4) using said first given communication protocol.

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**METHOD AND ARCHITECTURE FOR REMOTE MONITORING OF A
USER STATION VIA AN INTERNET-TYPE NETWORK AND
APPLICATION THEREOF TO A SMART CARD DEMONSTRATOR**

Inventor: Renaud MARIANA

Applicant: Bull CP8

ABSTRACT

The invention concerns a method and an architecture for remote control, via an internet-type network (*RI*), of a user station (1) comprising a smart card reader (3). The data required to control the station (1) are stored (41) in a remote server (4). The station (1) comprises a web-type browser (10) that transmits requests to the server (4). In response, the latter generates specific commands designed for the smart card (2). The station (1) comprises a specialized software module (8) forming an interface between the smart card reader (3) and the internet network (*RI*). This module (8) translates the specific commands into commands in conformity with the ISO 7816-4 standard, and transmits them to the smart card (2) in order to activate an application of the latter. The server (4) can also store (42) HTML pages. The smart card (2) transmits, via the specialized software module (8), a response to the remote server (4), which processes it and retransmits the data to the browser (10) for display on a screen (5).

The invention is particularly applicable to a smart card (2) demonstrator.

FIG. 3

FIG.1

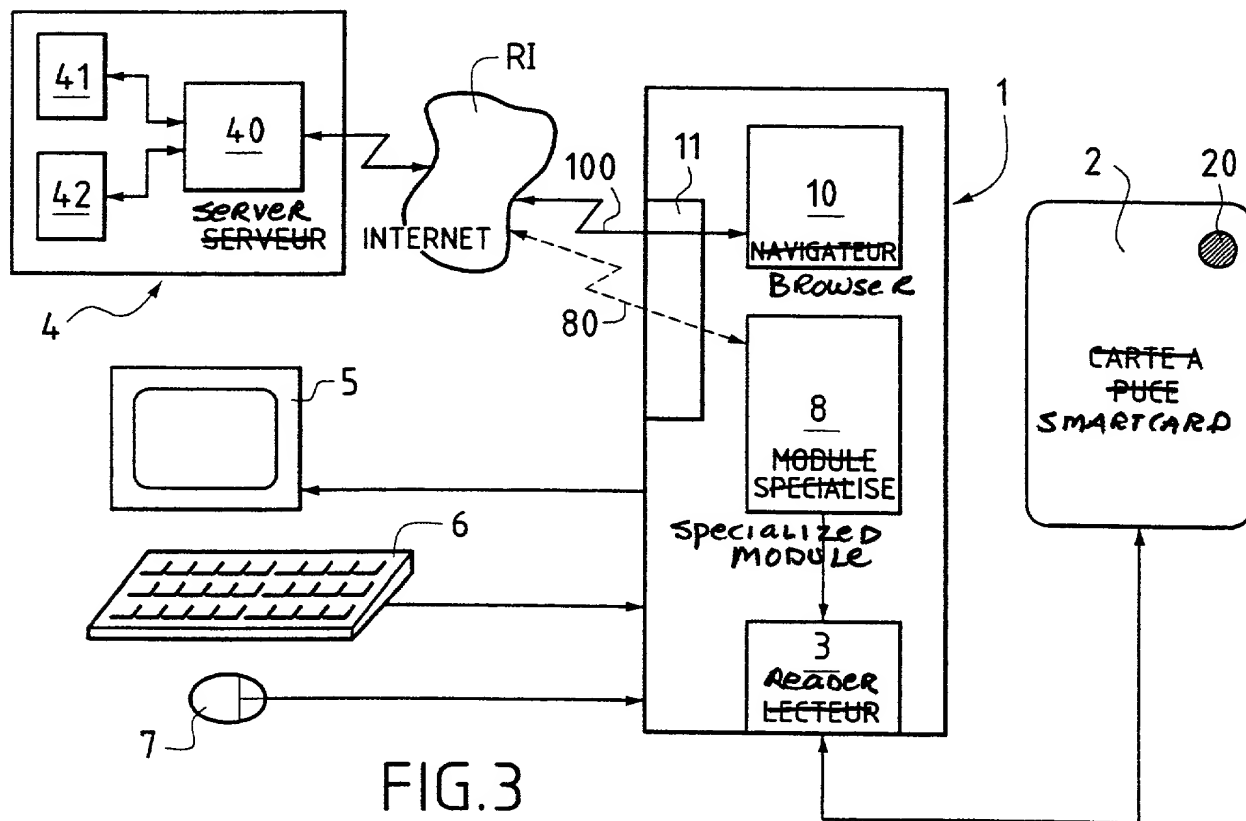
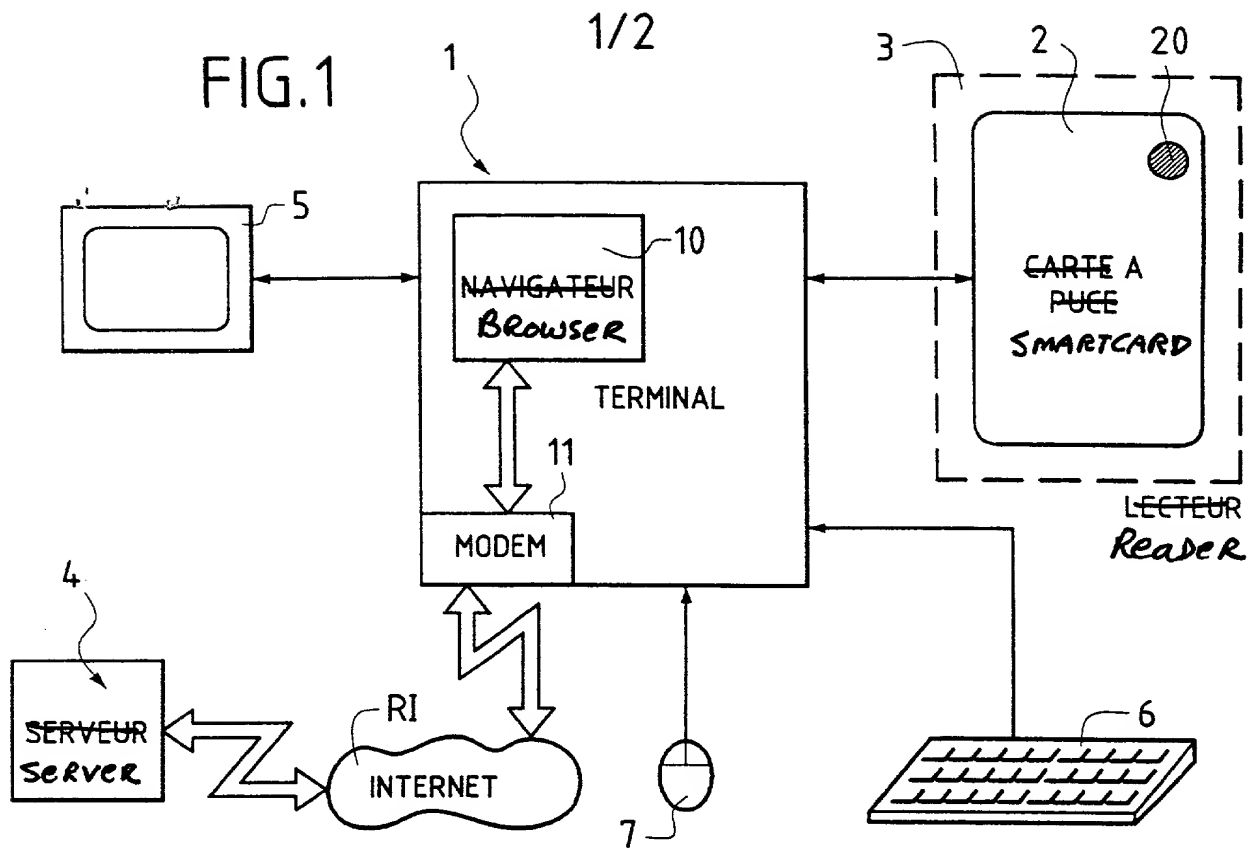
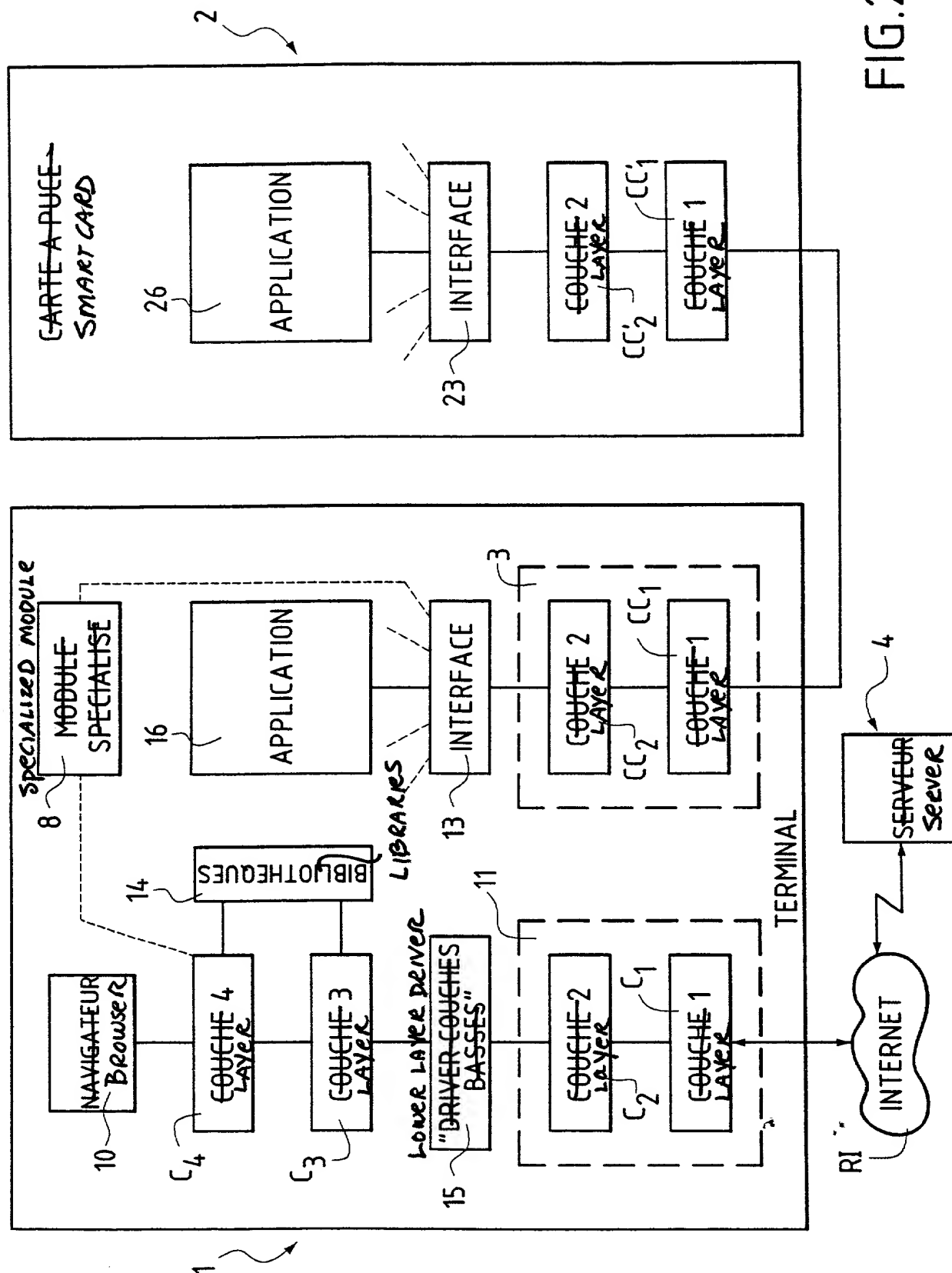


FIG.3



Declaration and Power of Attorney For Patent Application **Declaration Pour Demandes de Brevets Avec Pouvoirs** **French Language Declaration**

En tant qu'inventeur nommé ci-après, Je déclare par le présent acte que:

Mon nom, mon domicile, mon adresse postale, ma nationalité sont ceux qui figurent ci-après,

Je déclare que je crois être l'inventeur original, premier et unique (si un seul nom figure sur le présent acte) ou un des co-inventeurs, originaux et premiers (si plusieurs noms figurent sur le présent acte) du sujet revendiqué et pour lequel un brevet est demandé sur la base de l'invention intitulée:

~~Procédé et architecture de pilotage à distance~~
~~d'une station d'utilisateur via un réseau de type~~
~~Internet et leur application à un démonstrateur~~
~~de carte à puce.~~

dont la description
 (cocher la case correspondante)

☒ est annexée au présent acte.

☐ a été déposée _____

Numéro de série de la demande _____

et modifiée le _____
 (si approprié)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

the specification of which

(check one)

☐ is attached hereto.

☐ was filed on _____ as

Application Serial No. _____

and was amended on _____
 (if applicable)

Je déclare par le présent acte avoir examiné et compris le contenu de la description identifiée ci-dessus, revendications y compris, et le cas échéant telle que modifiée par l'amendement cité plus haut.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

Je reconnais le devoir de divulguer l'information qui est en rapport avec l'examen de cette demande selon Titre 37 du Code des Règlements Fédéraux §1.56(a).

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

French Language Déclaration

Je revendique par le présent acte avoir la priorité étrangère, en vertu du Titre 35, § 119(a)-(d) ou § 365(b) du Code des Etats-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, § 365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les Etats-Unis et figurant ci-dessous et, en cochant la case, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT ayant une date de dépôt précédant celle de la demande à propos de laquelle une priorité est revendiquée.

Prior foreign application(s)
Demande(s) de brevet antérieure(s)

9912011**FR**

(Number) (Country)
(Numéro) (Pays)

(Number) (Country)
(Numéro) (Pays)

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(N° de demande) (Date de dépôt)

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(N° de demande) (Date de dépôt)

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PCT/FR00/02642**25/09/00**

(Application No.) (Filing Date)
(N° de demande) (Date de dépôt)

(Application No.) (Filing Date)
(N° de demande) (Date de dépôt)

Je déclare par le présent acte que toute déclaration ci-incluse est, à ma connaissance, véridique et que toute déclaration formulée à partir de renseignements ou de suppositions est tenue pour véridique; et de plus, que toutes ces déclarations ont été formulées en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'une amende ou d'une incarcération, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des Etats-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365 (b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below, and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Claimed
Droit de priorité revendiqué

27/09/99

(Day/Month/Year Filed)
(Jour/Mois/Année de dépôt)

(Day/Month/Year Filed)
(Jour/Mois/Année de dépôt)

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

PENDING

(Status) (patented, pending, abandoned)
(Statut) (breveté, en cours d'examen, abandonné)

(Status) (patented, pending, abandoned)
(Statut) (breveté, en cours d'examen, abandonné)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

French Language Declaration

POUVOIR: En tant qu'inventeur, je désigne l'(les) avocat(s) et/ou l'(les) agent(s) suivant(s) pour poursuivre la procédure de cette demande et traiter toute affaire la concernant supris du Bureau des Brevets et de Marques:

Harold L. Stowell, Reg. 17,233
 Edward J. Kondracki, Reg. 20,604
 Dennis P. Clarke, Reg. 22,549
 William L. Feeney, Reg. 29,918
 John C. Kerins, Reg. 32,421

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

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Nom complet du seul ou premier inventeur		Full name of sole or first inventor	
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Nationalité		Citizenship	
Française			
Adresse Postale		Post Office Address	
5 square Las Cases 78150 LE CHESNAY France			
Nom complet du second co-inventeur, le cas échéant		Full name of second joint inventor, if any	
Signature de l'inventeur	Date	Second Inventor's signature	Date
Domicile		Residence	
Nationalité		Citizenship	
Adresse Postale		Post Office Address	

(Fournir les mêmes renseignements et la signature de tout co-inventeur supplémentaire.)

(Supply similar information and signature for third and subsequent joint inventors.)